**BEFORE THE**

# Federal Communications Commission

**WASHINGTON, D.C. 20554**

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| In the Matter of | ) | |
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| National Radio Systems Committee DAB | ) | DA 01-2932 |
| Subcommittee's Evaluation of the iBiquity | ) | MM Docket No. 99-325 |
| Digital Corporation IBOC System | ) | |
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To: The Commission

## COMMENTS OF INFINITY BROADCASTING CORPORATION

## I. INTRODUCTION AND BACKGROUND

Infinity Broadcasting Corporation ("*Infinity*"), by its attorneys, hereby submits these comments in response to the Public Notice issued by the Federal Communications Commission ("*FCC*" or "*Commission*") on December 19, 2001 in MM Docket No. 99-325 (the "*Public Notice*"). In the Public Notice, the FCC requested comments on the report filed by the National Radio Systems Committee ("*NRSC*") on December 3, 2001 (the "*NRSC Report*") and the test results filed by iBiquity Digital Corporation ("*iBiquity*") on December 6, 2001 concerning iBiquity's hybrid mode FM in-band, on-channel ("*IBOC*") digital audio broadcasting ("*DAB*") system.

Infinity is very encouraged by the comprehensive results described in the NRSC Report, and believes that implementation of iBiquity's IBOC technology as recommended by NRSC will greatly benefit the radio broadcasting industry. The NRSC Report demonstrates that the iBiquity IBOC system performs well, that it offers a significant upgrade compared to existing analog services, and – significantly – that it is compatible with existing analog broadcasting

which will permit the implementation of IBOC DAB in a hybrid mode without disrupting existing analog operations. Infinity is convinced that iBiquity's IBOC DAB is a viable system that will enable the industry to successfully introduce DAB to the public, and strongly urges the FCC to endorse and help facilitate the rapid implementation of this superior, cutting-edge technology. IBOC DAB has received strong support from both broadcasters and the consumer electronics industry, and will enable this country's free over-the-air radio industry to stay competitive with today's pay digital media providers, such as digital cable audio and the new satellite digital radio systems that are now offering services to the public.

Infinity, a subsidiary of the former CBS Corporation ("CBS"), which merged with Viacom Inc., is one of the largest radio broadcasting companies in the United States, operating 138 FM and 48 AM stations in 41 markets. Infinity's 186 radio stations serve diverse segments of the population, and offer a wide variety of programming formats. CBS has been a pioneer in the broadcast industry, both as a developer of innovative, ground-breaking programming, and as an innovator of broadcast technology, including a leading role in the development of High Definition Digital Television. CBS was one of the original founders of iBiquity, and it remains wholly supportive of iBiquity's IBOC technology. Infinity is eager to implement the higher quality service that, as the NRSC Report demonstrates, IBOC DAB will provide to the public, and in January of this year, in conjunction with iBiquity, announced that it was one of several broadcasters that support the launch of IBOC in 2002.

As discussed below, several of Infinity's radio stations, including KLLC(FM), San Francisco, California, WHFS(FM), Annapolis, Maryland, WJFK-FM, Manassas, Virginia, KLUC-FM, Las Vegas, Nevada, and WNEW(FM), New York, New York, participated in tests of the iBiquity IBOC system. The Infinity engineers involved in the testing were impressed by the

relative ease of implementing the digital format. They also observed that the impact upon the stations' analog operations from the implementation of the IBOC system was minimal, and that none of the participating Infinity stations received reports of any interference caused to other stations as a result of the IBOC operations.

Infinity concurs with the following conclusions issued by NRSC: that the iBiquity IBOC system represents a significant improvement over the existing analog services; that listeners should not perceive an adverse impact on the analog host signal, nor on the analog signals of 1st-adjacent and 2nd-adjacent channels; and that the IBOC technology will provide nearly full immunity from typical FM multipath reception problems.[1] Infinity therefore respectfully submits that it is in the public interest that the Commission establish rules for the rapid implementation of this next milestone in broadcasting history.

## II. IBOC DAB ENHANCES CURRENT RADIO PERFORMANCE AND PROVIDES A SMOOTH TRANSITION TO DIGITAL OVER-THE-AIR SERVICE

Infinity is impressed by and supports the conclusions contained in the NRSC Report. In particular, Infinity agrees that (i) the iBiquity hybrid FM IBOC system technology will enhance the sound quality and fidelity of the FM band, compared with existing analog FM in mobile listening environments; (ii) hybrid IBOC digital coverage is comparable to analog coverage, and that due to FM IBOC's improved resistance to various types of interference, FM IBOC service will be provided in areas where analog service is currently of unacceptable quality; (iii) iBiquity's IBOC system produces a signal that is substantially more robust to impulse noise, co- and adjacent channel interference, and multipath fading; (iv) the acquisition performance of the iBiquity IBOC system is essentially identical to that of an analog FM radio; (v) the iBiquity

[1] Report of the National Radio Systems Committee, filed in MM Docket No. 99-325,
*Footnote continued*

IBOC system will provide significant auxiliary data transmission capabilities; and (vi) listeners will not perceive an impact on analog reception during hybrid IBOC operation or on subcarrier services.[2] Based on the NRSC Report, Infinity is convinced that broadcasters will be able to implement the hybrid phase of the transition to DAB with minimal and easily-manageable disruption to the public.

Infinity's enthusiasm about IBOC has increased as a result of its direct participation in the testing of iBiquity's IBOC system. As noted earlier, several of Infinity's stations, including WHFS-FM, Annapolis, Maryland, WJFK-FM, Manassas, Virginia, WNEW-FM, New York, New York, and KLUC-FM, Las Vegas, Nevada, participated as IBOC test stations. The technical operations of these stations present a number of interesting characteristics that iBiquity focused on in its test program. WHFS, for example, presents particularly severe second adjacent channel interference issues in the Washington, D.C. market, whereas WJFK has one of the most severe first adjacent channel interference situations in the country. WNEW offered the opportunity to assess IBOC performance using a combined antenna and very low power broadcasting from the Empire State Building. Overall, Infinity has been extremely satisfied with the performance of the IBOC system on its stations, and the IBOC system has met Infinity's expectations. Infinity is particularly encouraged by the NRSC's conclusion that, during the hybrid stage of IBOC implementation, there will be no additional analog co-channel interference, that listeners within a station's protected contour should not perceive any additional interference on a 1st-adjacent analog channel, and that only a very limited number of listeners in a

RM-9395, December 3, 2001 (the "*NRSC Report*"), p. 9.

[2] NRSC Report, p. 10-11.

limited area will receive some interference on a 2nd-adjacent analog channel.[3] Indeed, Infinity is pleased to report that it has not received any complaints of interference or degraded performance due to the introduction of IBOC, especially considering that Infinity has been broadcasting the IBOC system for more than 20 months in New York, and for more than 12 months at both WHFS and WJFK.

In addition to the positive test results, Infinity also was very pleased with the conversion process for these stations. In all cases, the stations were able to upgrade to digital operation with minimal disruption to existing analog services and without creating a drain on station resources. Infinity anticipates that it will have a similar experience in upgrading the remainder of its stations to IBOC.

The iBiquity IBOC system allows for a gradual transition to an all-digital environment, with an initial hybrid stage in which both analog and digital broadcasts would co-exist. This transition should result in minimal disruption to station listeners. A gradual transition to all-digital will allow consumers to continue to use analog receivers for several years, and gradually upgrade to digital as part of the normal cycle of equipment replacement. Such a phased-in transition to IBOC will allow broadcasters to upgrade to digital as local listener demand warrants, rather than by requiring a forced, immediate conversion to all-digital technology. Infinity recommends that in authorizing the implementation of iBiquity's IBOC DAB system, the Commission should authorize both the hybrid and all-digital modes in its initial authorization. This will enable broadcasters to know from the outset that their investment in an IBOC DAB system will be consistent with an eventual all-digital system.

[3] NRSC Report, p. 60.

Significantly, with IBOC DAB, neither the public nor broadcasters will suffer exorbitant costs to upgrade to digital, because most of the equipment currently used by broadcasters, including the studio equipment and tower, will also be compatible with the digital system, and new digital receivers using the IBOC format, once in full production, should not be significantly more expensive than current analog equipment. Also, broadcasters will retain their current positions on the dial. Therefore, iBiquity's IBOC proposal both minimizes disruptions and dislocations, and provides the best opportunity for existing broadcasters to upgrade their stations and to participate in the provision of the greatly-enhanced digital services.

Finally, the NRSC Report convincingly demonstrates that iBiquity's IBOC system will enhance signal robustness, which will reduce impairment to radio signals such as multipathing and noise, increase the signal's resistance to natural and man-made obstructions, and improve signal reception at the outer perimeters of a station's coverage area, thereby enhancing the service provided by broadcasters.

## III. THE COMMISSION SHOULD ACT NOW TO AUTHORIZE FREE LOCAL OVER-THE-AIR DIGITAL RADIO

Terrestrial radio broadcasting is a vital public resource that impacts the lives of nearly every person in the United States. Nearly all persons in the United States have access to terrestrial radio broadcasting; inexpensive portable radios have been publicly available for many years, and virtually all motor vehicles in this country contain at least a basic car radio. Therefore, an upgrade to the new enhanced digital service that IBOC DAB represents will greatly benefit the public. Infinity supports iBiquity's position that the Commission should now act to sanction the implementation of IBOC by terrestrial broadcasters.

The FCC has recognized "the importance of our free, over-the-air radio broadcast service, with its unrivaled accessibility and unique ability to provide local news, information and public service programming."[4] Terrestrial radio stations, covering finite geographical areas, are known for maintaining especially strong ties with the local communities that they serve, and for uniquely reflecting the local tastes, values, and interests of their local communities. Besides sports, talk, and music programming, broadcasters provide crucial comprehensive news information and Emergency Alert System broadcasts. This country's radio broadcasters responded impressively to the horrific events of September 11th, disseminating news and emergency information, providing a platform for the public to discuss its emotions and opinions, and even spearheading efforts to raise money for the victims of the horror. Such civic-mindedness and localism have consistently been core values of the radio broadcasting industry, and highlight the indispensable services that the radio broadcasting industry provides to the public. Radio broadcasters take an active and direct role in assisting the local communities that they serve. Thus, facilitating the implementation of IBOC digital service will both preserve and revitalize terrestrial radio, and will clearly further the public interest.

Although analog radio has proven to be remarkably durable over the years, technologically, it is limited as to quality and sound fidelity. Since the intrinsic limitations of analog radio broadcast technology do not allow for further material improvements in quality, broadcast radio is faced with significant competitive challenges in the new digital world. Current analog radio simply cannot adapt to keep pace with digital technologies that have been

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[4] *In the Matter of Digital Audio Broadcasting Systems and Their Impact On the Terrestrial Radio Broadcast Service, Notice of Proposed Rule Making* in MM Docket No. 99-325, FCC 99-327 at para. 4 (1999).

introduced in other services. The public has come to expect, and to demand, that as new and better technologies are developed, such technologies will be made available for its use. When the first phonograph was introduced, the public accepted the relatively poor quality of the sound that emanated from the scratchings cut onto a wax cylinder. When records were later introduced, which produced a higher quality of sound, the public no longer accepted the previous technology. As the public has embraced each new technological milestone that offered improved signal fidelity, the public has abandoned the inferior technology that was the norm of the preceding stage. Vinyl records replaced "78" records; stereo replaced mono; FM radio surpassed AM in signal quality; 8-track tape was replaced by cassette tape; and now, digital technology like CDs, DAT, DVDs, and MP3 technology have quickly become the accepted norm that the public demands. In 2001, one of the satellite digital radio providers licensed by the FCC began offering services to the public. The second licensee plans to begin service imminently. To remain competitive in this digital age, terrestrial broadcasters must be able to offer what the public demands – namely, the higher quality and fidelity of digital broadcasting. In light of the highly competitive nature of broadcasting, free over-the-air broadcasters must be given the opportunity to provide at least an equivalent digital service to the public.

## IV. iBIQUITY'S IBOC SHOULD BE DESIGNATED THE SINGLE U.S. STANDARD FOR DAB

In comments filed previously in this proceeding, one broadcaster observed that DAB "will help maintain the competitiveness of broadcasters in a market that includes DARS, cable and satellite delivery of digital audio, and Internet audio," and that "[b]y allowing radio broadcasters to compete in the digital arena, [broadcasters] will be able to continue to provide the

local community service its listeners have come to expect."[5] Terrestrial radio is among the most widely accessible technologies, but if there is a continued prolonged delay in allowing for an upgrade to DAB, terrestrial radio will languish in comparison to cutting-edge digital technologies that are already being offered by terrestrial radio's competitors. Infinity therefore joins with iBiquity in urging that the Commission act expeditiously to select iBiquity's IBOC as the standard for digital broadcasting in the United States, and that it establish rules to allow terrestrial broadcasters to implement IBOC immediately.

It is in the public interest for the Commission to adopt IBOC as the single DAB standard in the most expeditious manner possible. According to the Consumer Electronics Manufacturers Association ("*CEMA*"), "[t]echnical standardization is critical...A required standard will protect consumers against losses by assuring them that their investments in DAB equipment will not be made obsolete by a different technology. In addition, requiring the use of a single standard guarantees compatibility. This assures consumers that DAB equipment used to listen to one station can be used to listen to every other station."[6] The designation of a formal DAB standard will facilitate the prompt roll out of IBOC technology by providing a level of assurance to broadcasters and receiver manufacturers that their investment in this new technology will be supported.

Infinity joins the many broadcasters that support iBiquity's IBOC DAB system as the only viable, premier DAB technology. The iBiquity IBOC system provides high quality

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[5] Comments of Heftel Broadcasting Corporation filed *In the Matter of Amendment of Part 73 of the Commission's Rules to Permit the Introduction of Digital Audio Broadcasting in the AM and FM Broadcast Services*, RM-9395 (1998) at 2.

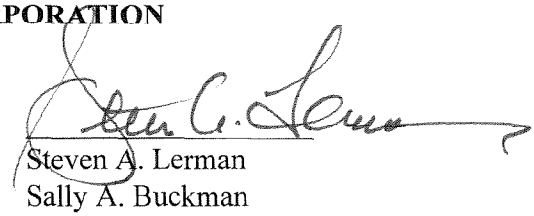
[6] Comments of CEMA filed *In the Matter of Amendment of Part 73 of the Commission's Rules to Permit the Introduction of Digital Audio Broadcasting in the AM and FM Broadcast Services*, RM-9395 (1998) at 11-12.

digital coverage, with increased robustness, throughout a station's current service area, and will allow broadcasters to remain competitive with those already offering digital technology to the public.

For the reasons set forth above, Infinity respectfully urges that the Commission expeditiously endorse the iBiquity IBOC system as the standard for DAB, and allow broadcasters to implement IBOC DAB in the hybrid mode at the earliest possible time.

Respectfully submitted,

**INFINITY BROADCASTING CORPORATION**

By: 

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